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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,140	08/18/2003	J. Richard Aylward	02103-519002 / AABOSS93-C	3288
26162	7590	12/10/2007	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			KURR, JASON RICHARD	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p>10/643,140</p>	<p>Applicant(s)</p> <p>AYLWARD ET AL.</p>	
	<p>Examiner</p> <p>Jason R. Kurr</p>	<p>Art Unit</p> <p>2615</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/17/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: Claim 1 recites the limitation "the listener" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5, 7 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Scofield (US 6,853,732 B2).

With respect to claim 1, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated by an audio device in a predetermined positional relationship to the listener, comprising: a listening area (fig.3 #64), comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a directional audio device (fig.3 #58,60), positioned in a first of said listening

spaces, close to a head of a listener (fig.3 #26), for radiating first sound waves corresponding to components of a first of said channels; and a nondirectional audio device (fig.3 #52), positioned inside said listening area and outside said listening space, distant from said listening space, for radiating sound waves corresponding to components of a second of said channels (col.4 ln.58-63).

With respect to claim 5, Scofield discloses an audio system in accordance with claim 1, wherein said listening area comprises a theater and said first and second listening spaces comprise seating locations within said theater (col.1 ln.33-36).

With respect to claim 7, Scofield discloses a method for operating an audio system for radiating sound into a first listening space and a second listening space, said first listening space adjacent said second listening space (fig.3 "spaces occupied by listeners #26"), comprising: receiving first audio signals (fig.3 "L,R"); transmitting first audio signals (fig.3 #54,56) to a first transducer (fig.3 #52, col.4 ln.21-25); transducing, by said first transducer, said first audio signals into first sound waves corresponding to said first audio signals; radiating said first sound waves into a first listening space; processing said first audio signals to provide delayed first audio signals, wherein said processing comprises at least one of time delaying said audio signals and phase shifting said audio signals (col.4 ln.37-45); transmitting said delayed first audio signals to a second transducer (fig.3 #58,60); transducing, by said second transducer, said delayed first audio signals into second sound waves corresponding to said delayed first audio signals; and radiating said second sound waves into said second listening space (fig.3).

With respect to claim 16, Scofield discloses a method for radiating audio signals comprising: radiating sound waves corresponding to first audio signals (fig.3 "R") directionally to a first listening space (fig.3 #58,60, "spaces occupied by listeners #26"); radiating sound waves corresponding to second audio signals (fig.3 "L") directionally to a second listening space (fig.3 #58,60, "spaces occupied by listeners #26"); and radiating sound waves corresponding to third audio signals nondirectionally to said first listening space and said second listening space (fig.3 #52, col.4 ln.58-63).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Iwahara (US 4,199,658).

With respect to claim 2, Scofield discloses an audio system in accordance with claim 1, wherein said directional audio devices comprise a plurality of acoustic drivers (fig.3 #58,60), however does not disclose expressly wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space.

Iwahara discloses an audio system wherein a plurality of acoustic drivers (fig.1 #1-4) are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space (col.1 ln.37-68, col.2 ln.1-2).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the crosstalk cancellation system of Iwahara in the invention of Scofield. The motivation for doing so would have been to cancel inter-aural interferences between the right and left ears of a listener.

With respect to claim 3, Scofield discloses an audio system in accordance with claim 2 in view of Iwahara, wherein said first predetermined location is in a first listening space and said second predetermined location is in a second listening space (Iwahara: col.1 ln.57-66).

With respect to claim 4, Scofield discloses an audio system in accordance with claim 2 in view of Iwahara, wherein said first predetermined location is proximate a first volume for receiving a first ear of a listener and wherein said second predetermined location is proximate a second volume for receiving a second ear of said listener (Iwahara: col.1 ln.57-66).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Fabry (US 7,164,773 B2).

With respect to claim 6, Scofield discloses an audio system in accordance with claim 1, however does not disclose expressly wherein said listening area comprises a

vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

Response to Arguments

Applicant's arguments filed September 24, 2007 have been fully considered but they are not persuasive.

With respect to claim 1, the Applicant argues that Scofield does not disclose a non-directional audio device for radiating sound waves corresponding to components of a second of the plurality of channels intended to be radiated in a predetermined positional relationship relative to the listener. The Examiner would like to note that the speaker 52 reproduces audio of a separate channel than that of speakers 58 and 60 which reproduce audio of the right and left channels. The present claims merely state that there is a first and second of said channels, with no distinction of the information being transmitted through each channel. Therefor speaker 52 may reproduce exactly the same information as speakers 58 and 60, and still be on a separate channel. However this is not the case in Scofield, the speaker 52 reproduces a signal of a

Art Unit: 2615

different frequency range as the speakers 58 and 60, thus reinforcing the need for a separate channel.

With respect to claim 7, the Applicant argues that there is no disclosure of processing first audio signals to provide delayed first audio signals and transducing that delayed first audio signal to provide second sound waves radiated into the second listening space. The Examiner disagrees with this assertion. Scofield clearly states that the audio signal portion above 250Hz is delayed compared to the signal portion under 250Hz then transmitted to speakers 58 and 60 (col.4 ln.37-45). Thus the first audio signal is transduced by speaker 52, then simultaneously the first audio signal is delayed then transduced by speakers 58 and 60. The Applicant also argues that the signal received by speakers 58 and 60 are not the same as the first signal received by speaker 52. The Examiner disagrees and contends that these are the same signal, only processed by signal conditioner #44 to transmit only certain frequency ranges of the signal to each speaker.

With respect to claim 16, it is unclear to the Examiner as to what the Applicant is arguing. The Examiner would like to note that the speakers 58 are directionally radiating sound waves to a first listening space (fig.3 listeners right ear) and speakers 60 are directionally radiating sound waves to a second listening space (fig.3 listeners left ear) and speaker 52 is non-directionally radiating sound waves to both the first and second listening spaces.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2615

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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